

Claims

1       1. A machine-based method comprising  
1       1       enabling storage of bindings that describe a document  
2 by associating content elements with layout elements, the  
3 layout elements defining layout features or placement  
4 information to be applied to the associated content elements  
5 in the document, the bindings being stored separately from  
6 both the content and layout elements.

7       2. The method of claim 1 further comprising  
1       1       enabling storage of bindings that describe another,  
2 different document by associating at least one of the content  
3 elements with at least one of the layout elements, at least  
4 one layout element defining layout features or placement  
5 information to be applied to at least one corresponding  
6 content element in the different document, the bindings for  
7 the different document being stored separately from the  
8 bindings for the document and separately from the content and  
9 layout elements.

10     3. A machine-based method comprising  
1       1       enabling storage of bindings that describe a document  
2 by associating content elements with layout elements, the  
3 layout elements defining layout features or placement  
4 information to be applied to the associated content elements  
5 in the document,  
6       enabling storage of bindings that describe another,  
7 different document by associating at least one of the content  
8 elements with at least one of the layout elements, the at  
9 least one layout element defining layout features or  
10 placement information to be applied to the corresponding at  
11 least one content element in the different document.

12       4. The method of claim 1 or 3 in which the bindings  
13 provide a primary control for the generation of the document  
14 and the different document.

15       5. The method of claim 2 or 3 further comprising  
1       enabling generation of the document and the different  
2 document using the elements and bindings.

3       6. The method of claim 1 or 3 further comprising  
1       enabling storage of the content elements and the layout  
2 elements.

3       7. The method of claim 1 or 3 in which at least some  
4 of the layout elements and at least some of the content  
5 elements are identified by uniquely named binding sites.

6       8. The method of claim 1 or 3 in which the content  
7 elements are stored in a portfolio and the layout elements  
8 are stored in a separate portfolio.

9       9. The method of claim 1 or 3 in which some of the  
10 bindings are layout-centric and some of the bindings are  
11 content-centric.

12       10. The method of claim 2 or 3 in which the bindings  
13 for the two documents are the same and at least one of the  
14 content elements and layout elements associated with the  
15 binding sites is different for the document and the different  
16 document.

17       11. The method of claim 2 or 3 in which the bindings  
18 for the two documents are different and at least some of the  
19 content elements and the layout elements are the same for the  
20 document and the different document.

21       12. A machine-based method comprising

1        using an application program to create content elements  
2 for use in documents,

3        storing the content elements in a format native to the  
4 application program,

5        forming a content portfolio, based on the stored  
6 content elements, by

7                storing unique binding site names associated with  
8 respective content elements, and

9                storing information with each of the content  
10 elements that aids a formatter in generating documents  
11 based on the content elements and on layout elements  
12 stored in a layout portfolio.

13        13. The method of claim 12 in which the information  
14 that aids the formatter comprises attributes associated with  
15 the content elements.

16        14. The method of claim 12 further comprising storing  
17 a binding specification which refers to the content elements.

18        15. The method of claim 12 in which the forming of the  
19 content portfolio also comprises storing implementation  
20 specific properties.

21        16. The method of claim 12 in which the forming of the  
22 content portfolio also comprises storing portfolio-specific  
23 attributes.

24        17. The method of claim 12 in which the forming of the  
25 content portfolio also comprises storing a list of binding  
26 sites of elements belonging to the content portfolio.

27        18. The method of claim 12 in which the forming of the  
28 content portfolio also comprises storing a list of groups of  
29 content elements belonging to the content portfolio.

30        19. A medium storing a machine-readable program that

1       enables storage of bindings that describe a document by  
2 associating content elements with layout elements, the layout  
3 elements defining layout features or placement information to  
4 be applied to the associated content elements in the  
5 document, the bindings being stored separately from both the  
6 content and layout elements.

7       20. A medium storing a machine-readable program that  
1       enables storage of bindings that describe a document by  
2 associating content elements with layout elements, the layout  
3 elements defining layout features or placement information to  
4 be applied to the associated content elements in the  
5 document, and

6       enables storage of bindings that describe another,  
7 different document by associating at least one of the content  
8 elements with at least one of the layout elements, the at  
9 least one layout element defining layout features or  
10 placement information to be applied to the corresponding at  
11 least one content elements in the different document.

12      21. A medium storing a content portfolio capable of  
13 configuring a machine to enable generation of documents based  
14 on a content portfolio, a layout portfolio, and a binding  
15 specification, the content portfolio including content  
16 elements, names of unique binding sites associated with the  
17 content elements, and information configured to aid a  
18 formatter in generating the documents based on the content  
19 portfolio, the layout portfolio, and the binding  
20 specification.

21      22. The medium of claim 21 in which the information  
22 that aids the formatter comprises attributes associated with  
23 the content elements.

24 23. The medium of claim 21 in which the information  
25 that aids the formatter comprises implementation specific  
26 properties.

27 24. The medium of claim 21 in which the information  
28 that aids the formatter comprises portfolio-specific  
29 attributes.

30 25. The medium of claim 21 in which the information  
31 that aids the formatter comprises a list of binding sites of  
32 elements belonging to the content portfolio.

33 26. The medium of claim 21 in which the information  
34 that aids the formatter comprises a list of groups of content  
35 elements belonging to the content portfolio.

36 27. A machine-based method comprising  
1 using an application program to create layout elements  
2 for use in documents,

3 storing the layout elements in a format native to the  
4 application program,

5 forming a layout portfolio, based on the stored layout  
6 elements, by storing unique binding site names associated  
7 with respective layout elements, and

8 storing information with each of the layout elements  
9 that aids a formatter in generating documents based on the  
10 layout elements and on content elements stored in a content  
11 portfolio.

12 28. The method of claim 27 in which the information  
13 that aids the formatter comprises attributes associated with  
14 the layout elements.

15 29. The method of claim 27 further comprising storing  
16 binding specifications that refer to the layout elements.

17       30. The method of claim 27 in which the forming of the  
18 layout portfolio also comprises storing implementation  
19 specific properties.

20       31. The method of claim 27 in which the forming of the  
21 layout portfolio also comprises storing portfolio-specific  
22 attributes.

23       32. The method of claim 27 in which the forming of the  
24 layout portfolio also comprises storing a list of binding  
25 sites of elements belonging to the layout portfolio.

26       33. The method of claim 27 in which the forming of the  
27 layout portfolio also comprises storing a list of groups of  
28 layout elements belonging to the layout portfolio.

29       34. A medium storing a layout portfolio capable of  
30 configuring a machine to enable generation of documents based  
31 on the layout portfolio, a content portfolio, and a binding  
32 specification, the layout portfolio including layout  
33 elements, names of unique binding sites associated with the  
34 layout elements, and information configured to aid a  
35 formatter in generating the documents based on the layout  
36 portfolio, the content portfolio, and the binding  
37 specification.

38       35. The medium of claim 34 in which the information  
39 that aids the formatter comprises attributes associated with  
40 the layout elements.

41       36. The medium of claim 34 in which the information  
42 that aids the formatter comprises implementation specific  
43 properties.

44       37. The medium of claim 34 in which the information  
45 that aids the formatter comprises portfolio-specific  
46 attributes.

47       38. The medium of claim 34 in which the information  
48 that aids the formatter comprises a list of binding sites of  
49 elements belonging to the layout portfolio.

50       39. The medium of claim 34 in which the information  
51 that aids the formatter comprises a list of groups of layout  
52 elements belonging to the layout portfolio.

53       40. A machine-based method comprising creating a  
54 binding specification for use in formatting documents based  
55 on the binding specification, content elements referenced by  
56 the binding specification, and layout elements referenced by  
57 the binding specification, and storing in the binding  
58 specification global bindings and direct bindings that aid  
59 the formatter in formatting documents.

60       41. The method of claim 40 in which the global  
61 bindings include a list of element bindings that define a  
62 default binding for elements of a specified type.

63       42. The method of claim 41 in which the global  
64 bindings include a list of model bindings that define a  
65 default model for a specified binding site.

66       43. The method of claim 40 in which the binding  
67 specification contains composition sequences that aid the  
68 formatter in formatting documents, the composition sequences  
69 defining the order in which formatting is to proceed using  
70 bindings between content elements and layout elements, each  
71 of the composition sequences including composition blocks  
72 containing ordered lists of direct bindings.

73       44. The method of claim 43 in which each of the direct  
74 bindings comprises a placement binding or a style binding.

75       45. A medium storing a binding specification capable  
76 of configuring a machine to enable generation of documents  
77 based on the binding specification, a layout portfolio, and a  
78 content portfolio, the binding specification including global  
79 bindings and direct bindings that aid the formatter in  
80 formatting documents.

81       46. The medium of claim 45 in which the global  
82 bindings include a list of element bindings that define a  
83 default binding for elements of a specified type.

84       47. The medium of claim 45 in which the global  
85 bindings include a list of model bindings that define a  
86 default model for a specified binding site.

87       48. The medium of claim 45 in which the binding  
88 specification contains composition sequences that aid the  
89 formatter in formatting documents, the composition sequences  
90 defining the order in which formatting is to proceed using  
91 bindings between content elements and layout elements, each  
92 of the composition sequences including composition blocks  
93 containing ordered lists of direct bindings.

94       49. The medium of claim 45 in which each of the direct  
95 bindings comprises a placement binding or a style binding.

96       50. A method of formatting a document based on  
97 bindings, content elements, and layout elements, the bindings  
98 defining relationships between the content elements and the  
99 layout elements, the method comprising processing bindings  
100 that comprise placement bindings before processing bindings  
101 that comprise style bindings.

51. A machine-based method of formatting a document using stored content elements and stored layout elements, the stored content elements including content aspects and layout aspects, the method comprising determining whether the layout should be dominated by the layout components or the layout aspects of the content components.

52. The method of claim 51 in which the content elements include layout aspects and the bindings contain information sufficient to mediate a conflict between a layout aspect of a content element and a layout element with which the content element is associated.

53. A medium storing a machine-readable program that enables an application program to create layout elements for use in documents,

stores the layout elements in a format native to the application program,

forms a layout portfolio, based on the stored layout elements, by storing unique binding site names associated with respective layout elements, and

stores information with each of the layout elements that aids a formatter in generating documents based on the layout elements and on content elements stored in a content portfolio.

54. A medium storing a machine-readable program that

1       enables creation of a binding specification for use in  
2 formatting documents based on the binding specification,  
3 content elements referenced by the binding specification, and  
4 layout elements referenced by the binding specification, and  
5       stores in the binding specification global bindings and  
6 direct bindings that aid the formatter in formatting  
7 documents.